

This is the mammal part of a series of  
notes on the fauna and flora of the Yellowstone  
Nat. Park, projected by Dr. Mearns and  
found among his effects.

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*Honorary Curator,  
Section of Birds' Eggs.*

WASHINGTON, D. C.,

March 8, 1901.



Cervus canadensis (Erxleben). (Sheet I.)

Elk.

April 22, 1902. - One old bull ~~was~~ seen grazing on the Gardiner River, Montana, at the altitude of 5500 feet.

April 19, 1902. - A large herd was seen grazing on the hills behind the M. H. S. Hotel.

Dec. 13, 1902. - Cows and calves in herds on the hills about M. H. S. At least 5000 were ranging between Mt. Evans and Turkey Pen Trail east of the Gardiner River.

July 29, 1889. - When crossing from the Upper Geyser Basin to the Yellowstone River by way of Mary Lake, an old bull trotted across the road <sup>in front of</sup> ~~before~~ the coach. His horns were in the velvet, and, apparently not more than half grown.

Scouts Holt and Morrison saw a female Elk chase a Coyote that had partly eaten ~~the~~ the Elk's fawn. This was on the head of Black-tail Deer Creek. Tracking the mother Elk the scouts came upon the calf, still alive though horribly mutilated, the ~~Coyote~~ Wolf having commenced to feed upon its flesh without stopping to kill it. The infuriated mother <sup>Elk</sup> would have caught up with the Coyote had she not turned aside to follow another one that started up closer to her. The first Coyote was so worn out from running that it fell to the ground and lay panting with its tongue hanging from its mouth.  
(2?)

In August a horn was found on the road, beside the Gardiner River. The velvet had been stripped off; but the odor of decay was so strong that the horn had been discarded by its owner.



Specimens of Cervus canadensis (Erxleben).

5418. ♂ One horn. Found on Gardiner River, August 2, 1902.
5423. ♂ juv. Skull with simple spike horns, found on the Gar-  
= diner River, Montana, Nov. 28, 1902.
5424. ♂ juv. Weathered horn Ditto. Ditto
5425. ♂ ad. do do do
5303. — Mammoth Hot Springs, Wyoming. Broken skull,  
found during the spring of 1902.
5304. ♂ ad. Mammoth Hot Springs, Wyoming. Skull (imperfect)  
found at the M. H. S., during the spring of 1902.
5270. ♀. Skull found at M. H. S. in April, 1902, but not  
taken until the following October (17th).
5271. ♂ ad. Pair of diseased horns, found on Black-tail Deer  
Creek, Y. U. P., by Lieutenant David L. Roscoe, 1st Cavalry,  
U. S. A., in 1901.
- 5272 to 5281. ♂♂ ad. ad. Ten single, shed horns, from the  
vicinity of Mammoth Hot Springs, Y. U. P., Wyoming,  
found during the spring of 1902.
5290. — juv. Head of Black-tail Deer Creek, Y. U. P. Skin + skull 1902.
5291. — juv. Hayden Valley, Y. U. P., Wyoming. " "
5292. — juv. do (Oldest of the three) do



Cervus canadensis (Erxleben). (Sheet II.)  
Elk.

At least 10,000 Elk, and probably many more are in the Park. On my arrival, April 19, 1902, a herd was feeding in sight of Fort Yellowstone, on the base of Sepulcher Mountain. This herd increased. All of the males had shed their horns before my arrival, to about 300 within a few weeks. Others were seen on the Montana strip of the Park, one, on April 22, as low as 5500 feet. <sup>Carcasses of</sup> Others ~~were~~ at a still lower altitude, that had died during the winter were found in a marsh close to the Yellowstone River, at the foot of the Turkey Pen trail. Hundreds of Elk were seen in April and May, east of Mount Evans. ~~as~~ Tragically, antlers were found beside the Gardiner River opposite Fort Yellowstone and the Mammoth Hot Springs, where several young cows and old bulls were seen dead. The scouts informed me that most of the Elk that perish during winter are old bulls and young of both sexes, there being very few old cows among the number.



Cervus canadensis (Erxleben). (Sheet IV.)  
3

Elk.

In July, 1902, the scouts were sent out to gather some of the newly-born Elk for the animal pen. Three of the number died, and were preserved as specimens, and sent to the USNM.

Towards the end of September the Elk commence to descend to from their summer pastures. In 1902, the first heavy snow of the season fell, at ~~the~~ the Mammoth Hot Springs, on September 28~~th~~; but it was not until November 17 and 18 that snow fell in sufficient amount to remain on the ground at that altitude (about 6200 feet). The scouts said that Elk would reappear on Sepulcher Mountain, in view from our quarters, "after the second snowstorm." As early as October 5, we heard Elk whistling on Benson Peak and in Snow Pass. This was the end of the rutting season, and none were heard whistling later. About the 1st of October an old bull died near the upper border of the Mammoth Hot Springs, close



Cervus canadensis (Erxleben). (Sheet ~~7~~.)  
4  
Elk.

to the 1-mile post (altitude 6635 feet). On November 14, ~~the~~ a bull and two cows came down to the same place; and tracks at the neighboring Dedolph Spring showed that others had been down before them. From this time on a few Elk were occasionally seen about the Mammoth Hot Springs; but there was no general movement before.

Nov. 9, 1902. - Two soldiers passed me in Snow Pass who had seen a herd of 14 Elk on upper Glen Creek. One of the men remarked: "Elk sure can run and jump!"

Oct. 17, 1902. - The country east of Mt. Evans was all tracked over by Elk, but the weather was severe, the snow quite deep, and not an Elk to be seen. Mr. Holt supposed they had descended or else taken refuge for the time in some sheltered woods where they escaped observation.

Elk were first heard whistling at Fort Yellowstone on the night of November 18, 1902, when the large herd arrived at Sepulchre Mountain to spend the winter. There were very few old males, and as it was the end of the rutting season no others were heard whistling that year. <sup>After</sup> a few days only females and young remained.



(Va)  
Snowstorms the Elk go down into the <sup>77</sup> valleys and feed on the tall blue grass. Sometimes they stay down in the blue grass country all winter. A horse can subsist on this grass a fortnight at a time.

They begin to whistle and rut about Aug. 25. Cows have young from 6500 ft upward. In summer most of the Elk are above 7500 feet. In winter they go down to the Yellowstone R. & Jackson Lake.

Holt says the story that elk are roped in deep snow and have their teeth extracted is a fake. Most of the elk teeth sold are taken from carcasses of dead elk. — mostly from Jackson Hole where ~~two~~ several hundred stray and die each winter. Holt found 12 calves in an area of 150 yds square in Fall River Basin in April 1900. They were too weak to stand and all died of starvation. The old elk were very poor at the same time. They had been caught in them by heavy snowfall & had tried to hold out around the warm springs.

Elk migrate down out of the Park during November. Holt thinks the number killed outside the park is as great as the number that die from natural causes. He has known a hunter to kill 20 and leave them in a pile to rot.

Young elk remain with mother ~~until~~ ~~the next year~~ about a year. Holt has sometimes seen newly-born calves & the young of preceding year with the mother, but this is rare. (over)



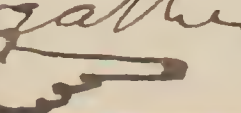
Elk.

Horns shed during February and March. (When I arrived in the Park April 17, there were no horns on any species of Deer.). In August they begin to mature, and the velvet is then rubbed off on Jack-pines (*P. murrayana*) and quaking asp (*P. tremuloides*). In August bucks may be seen running about with flaps of velvet a foot or more in length dangling from their horns.

When about to bear young the cow elk goes into a thicket of Jack-pine saplings hiding her calf among fallen logs which are usually lying in abundance in the nursery-like growths of young *Pinus murrayana*. She seldom feeds at a distance greater than 200 yards from her calf. When travelling in herds with young calves, the calves "squeal" uttering a peculiar cry. The noise of a passing herd of cows & calves is so great as to drown the human voice.

Males leave the females and herd by themselves from <sup>about</sup> the second week of November until the beginning of September.

Holt made a trip 10 miles up the Garden Valley Nov. 20th & saw 800 cows & calves. Lillian saw 5 males above the Snow Pass road Nov. 19.

During pleasant winter weather the  
(over) 



Cervus canadensis (Erxleben). (Sheet IV.)

of the herd on Sepulchre Mountain, which numbered  
about 200 on November 19.

A scout named Peter Holt, <sup>who has lived in the Park since July, 1893,</sup> gave me much reliable information respecting the Elk as follows:—

They are through putting about the middle of November, and then ~~ce~~ the males cease whistling. The young are born about the first of June; from the 1st to 10th nearly all are born. During the breeding season, when all of the Elk are in the Park, the number of Elk was estimated by Holt at 70,000 head. The female usually bears but one young, quite frequently two, probably never three.

The summer food is <sup>mostly</sup> grass. They prefer the short, soft grass that grows around the coarser grasses and in rocky places. The Elk, Hot Thinks, do not browse, like the Moose, on aspens; but the polish their horns on aspen saplings from which they rub off much of the bark. In heavy [see attached leaf, both sides]



Cervus canadensis (Erxleben). (Sheet VI.)

tendency is for Elk to keep working up higher in the mountains until snowstorms come and drive them down again. The young Elk, and old bulls, are those that perish in greatest numbers during ~~winter~~<sup>my</sup> winter. It is unusual to find dead cows. ~~When~~  
~~Dead~~ Bulls ~~are~~ are usually found low down, among willows and cottonwoods.

Coyotes prey upon new-born Elk calves, sometimes beginning to tear them to pieces without first killing them. Elk cows usually ~~changes their~~  
~~calf~~ An Elk cow usually changes her calf to <sup>the shelter of a</sup>  
~~a~~ different bush each time she feeds it.



Odocoileus leucurus (Douglas). (Sheet I.)

White-tailed Deer.

Oct. 5, 18902. - A doe with two fawns were seen at the Snow Pass road.

Dec. 13, 1902. - Several were feeding in the Post garden, on the Gardiner River (altitude 5600 feet).

Dec. 16, 1902. - On the Gardiner River.

~~Oct. 17, 1902. - Three old bucks, one lame, at M.H.S., near 1 mile post (altitude 6700 feet). Very tame. Returned to same spot where found lying down and driven away to "put them through their paces".~~

From April 19 to , 1902, it was seen about M.H.S., in small bands up to seven, sometimes with larger bands of Mule Deer.

In September, 1902, an enclosure was completed for a herd of Bison, and seven White-tailed Deer were unintentionally enclosed. Not very abundant in the Park. None had horns in April, all having been shed before my arrival. White-tails are seldom seen far from the Yellowstone River and its immediate tributaries, whereas the Mule Deer range throughout the Park.

Oct. 24, 1902. - At 4 P.M. a Doe and two fawns were drinking at the Fort Yellowstone post reservoir. River, and around Yellowstone Lake.

Along the Yellowstone White-tails are quite numerous. Holt estimates the number in the Park at 1000 head. On East and Fork <sup>where</sup> they are especially abundant many shed horns are found. In winter most of the "Fawn-tails" are between the mouth of Gardiner River and Soda Butte; but in summer they extend their range to the Yellowstone Lake and its tributaries. One or two <sup>at a first</sup> young? The horns are shed about as in the Mule Deer. Holt found shed horns on the head of the main Gardiner River, south of Electric Peak.



Specimens of Odocoileus leucurus (Douglas).

5255. ♂ ad. One shed horn (broken), found at Mammoth  
Hot Springs, Wyoming, May 1, 1902.
5437. ♂ ad. One shed horn, found at Cinnabar, Park Co.,  
Montana, December 16, 1902.
5438. ♂ ad. One shed horn Ditto.



Odocoileus hemionus (Rafinesque). (Sheet I)

Sakota Mule Deer.

One very red doe was seen 3 or 4 miles below the Lower Geyser Basin, July 27, 1889.

Oct. 5, 1902. - Three at Post reservoir, near Jupiter Terrace.

Aug. 1, 1902. - Saw doe with 2 fawns on Sepulchre Mtn.

Dec. 13, 1902. - Many were seen between M. H. S. and Gardiner City (5300 to 6300 feet altitude).

Dec. 16, 1902. - Abundant on the Gardiner River.

Oct. 12, 1902. - The first "Black-tails" returned to the upper edge of the M. H. S. "formation" early in September, but were rarely seen before October. By Oct. 11th they had become quite numerous there.

Oct. 17, 1902. - Three old "Black-tail" bucks were found lying down in the woods near the 1 mile post above M. H. S. (altitude 6700 feet). They were very tame, returning to the same spot after they had been driven out of the timber and "put through their paces." Then it was discovered that one buck that had been very reluctant to rise, was lame from a wound. These three remained about the spot for several days, and we were careful not to disturb them.

October 19, 1902. - Lillian saw 15 between M. H. S. & Golden Gate; among the number two old bucks at Snow Pass.

October 20, 1902. - About the Stygian Cave were two herds of Deer, one of does and one of bucks.

Oct. 13, 1902. - 4 does + 1 fawn on old Gardiner road.

Oct. 14, 1902. - Ella saw 34 on border of Basin conical, between Ft. Yellowstone and Bunsen Peak, of which only 4 were old bucks.



Specimens of Odocoileus hemionus (Rafinesque).

5417. ♂ juv. Fragment of skull found at M. H. S., Aug. 1, 1902.
5426. ♂ ad. Weathered horn. Gardiner River, Y. M. P., Montana. Found Nov. 28, 1902.
5436. ♂ ad. Pair of horns, found at Cinnabar, Park Co., Montana, December 16, 1902.
5256. ♂ ad. Skull of individual that died after shedding its horns. Given me, in 1902, by a scout named Wagner.
- 5257 to 5267. ♂♂ ad. ad. All shed horns found at Mammoth Hot Springs, Wyoming, during the spring of 1902.
5268. ♂ ad. Shed horn found at Fort Yellowstone post ditch, near Mammoth Hot Springs, Wyoming, October 16, 1902.
5269. ♂ ad. Shed horn found, October 28, 1902, in the foothills of Electric Peak, near Cinnabar, Montana.

Horns. - Holt thinks the young bucks acquire a spike horn within the first year. The horn forks the second year. At 4 or 5 years, their horns <sup>have reached</sup> ~~are~~ good size. Horns are shed during February. All of the horns are cast before April. During September and October they rub the velvet from their horns.



## Lynx.

(83)

Very abundant in the Park. They are most abundant where Rabbits are most numerous. Between the Fountain Geyser & Gibbon R. is a favorite resort. Food: Rabbits, Grouse, Squirrels. Holt does not personally know of their killing deer, though they are sometimes said to do so. Holt saw one just this side of Obsidian Cliff in February.

## Fox

Abundant. They burrow in a manner similar to Coyote. They come about stations & pick up scraps of food at night and even in daytime. Not as shy as Coyotes about visiting camps & cabins. Food, Rabbits, Grouse, mice in the Slices. Holt sees them frequently. They have grouse nests when the chicks are young. So does the Coyote.



Mule Deer

George Clephant Haynes skinned a Mule Deer Nov. 13<sup>th</sup> - a buck of unusually large size. One eye had been previously destroyed, probably in fighting. Two small points had also been broken off in fighting. It was killed by another buck. At least ten punctures were made, one point having entered under the <sup>fore leg</sup> ~~shoulder~~ and penetrated the chest a ~~few~~ <sup>few</sup> inches deeply. Most of the wounds were on the blind side. Scout Holt considered it to be an unusually large <sup>buck</sup>.

Very numerous all over the Park, descending from the high mountains in winter. They are doubtless outnumbered by the Elk. Holt thinks 5000 would cover the Park herds. Supposed to live 12-15 years. The young are born during the middle part of June. Usually 2 young, but frequently only one. Holt has never seen 3. The fawns are born from 6000 feet upward to the highest mountains. The fawns sometimes leave their mother in the fall, but often remain with them until the following spring. About the beginning of Dec. the old bucks usually separate from the herds of does & fawns, though they sometimes remain together through the winter.



*Odocoileus hemionus* (Rafinesque).

(Sheet II)

Sakota Mule Deer.

This is the common Deer of the Park. Hundreds were seen between Gardiner and M. H. S. when I arrived, April 19, 1902. All left before July except one young doe, <sup>at the altitude of 5700 feet</sup> seen on the lower Gardiner River, in the evening, early in the month. All had shed their horns before April. The first returned to M. H. S. formation (6650 feet altitude) Aug. 19, 1902. Sept. 19, 1902. - Old bucks were seen at Canyon Hotel; in winter coat, Sept. 19th.

Oct 15, 1902. - 11 seen at M. H. S., among them 2 old bucks.

Oct. 24, 1902. - None seen below the Post this fall; but a young Black-tail died from too much cabbage, at the post garden (5600 feet altitude), Nov. 14, 1902.

Nov. 17, 1902. - With Holt rode around Mt. Everts, passing up Turkey Run trail and to the right of Red Mountain. Many Deer were seen in deep snow on the high mountains; whence most of the Elk had descended on account of the severity of the weather. Nov. 10, 1902. - Herds of bucks now much thickened. They are now herded <sup>and favored</sup> with does.

Nov. 11, 1902. - The Deer that have been abundant in Snow Pass have all gone down into the Gardiner River valley since the heavy snow fell. Only one seen in Snow Pass. On Nov. 9, about 100 were seen, bucks with the does.

In October and November the bucks are very bold. An old one often stands at the roadside, and instead of turning aside for a <sup>pedestrian or</sup> horseman, lowers his head and rolls his eyes up defiantly. One never knows what to expect. The deer is so swift and powerful that it is necessary to be on one's guard, although I heard of no instances of their attacking persons. When feeding in deep snow they first paw then root, often raising their heads with a capping of snow on them.



Elk - Copied

tendency is for elk to keep working up higher on the mountains until snowstorms come and drive them down again. The young elk and old bulls are those that most frequently perish during winter. It is unusual to find a dead cow. Dead bulls are usually found low down among willows & cottonwoods.

Wolves prey upon new-born elk calves, beginning to tear them to pieces and eat them without first killing them.

The elk cow usually changes the calf to another bush each time she feeds it.



# Moose.

Holt estimates the Moose of the Park to number about 200.

Wagner supposed there were but two very fine old bulls in the Park herd; but Holt thinks there are from 50 to 75 bulls in the Park herds. Most of the Moose are on the South line of the Park; but there are some on the North side and centre. But few stray out of the Park in winter, and those few probably do not go beyond Jackson Lake. Holt saw 2 old bulls just outside the Park line at near Bridger's Lake, in September, 1902.

They breed where they winter in thick heavy willows down low. Usually one young. A Sergeant named Lorb saw a cow Elk near Snake River Station that had two young calves. Holt saw one late in April without horns, so he thinks they are cast in March. They winter in places where willows are thickest. From the Yellowstone Lake to the line it is always tramped up with Moose tracks in winter. The challenge of the bull Moose is very different from that of the Elk. Holt saw cows, calves & bull together in August. Holt thinks Sept. & October cover the rutting season. About the first of June the calves are born. On the Upper Yellowstone River

between the Lake and S. Park line they have mud wallows in summer where they go to get away from insects.

Moose visit the head of Black-tail Deer Creek about 12 miles from M.H.S.

Mr. a lawyer of Penn'a, killed a 2-yr-old bull  $\frac{1}{2}$  m. S. of S.E. corner of the Park, about the middle of Sept., 1902. Holt knows of no instance in which the moose has suffered from the attacks of other animals than <sup>apparently</sup> man. Neither the Wolf, Bear, or Puma troubles them.



Felis hyppolestes

Copied

Holt thinks 3000 to 4000 would be a fair estimate of the Mountain Lions in the Park. This is estimated from the number of tracks seen in the Park on snow-shoe trips over the Park.

3000 Holt thinks rabbits and  

$$\begin{array}{r} 52 \\ 6000 \\ 15000 \\ \hline 156000 \end{array}$$
 grouse are their principal food. They kill many red squirrels. Many deer are killed. Holt does not personally know of an instance where elk bulls have been killed by Lions, although he has seen where they have eaten dead bulls. [Holt knows of no animals - wolves, bear or Lions having troubled the moose.]

They kill many mountain sheep.

Holt has not <sup>personally</sup> known them to kill Antelope.

" " " found nest or young.

Holt saw one in the cow pasture a mile from the fort, laying on a ridge during itself soon after sunrise. He charged his horse towards it; but this only had the effect of making the Lion swing its tail. It was a large male, and was left where found.

Scout James L. Morrison shot 5/10 in under a big pine & 4 young, 1897-98. During loose deep snow.

Copied



Alces americanus Jardine.  
Moose.

A Moose was shot near the southern border of the Park, in September, 1902. A scout arrested and a trial was had; the party, but it chanced that the animal was beyond the Park limit, slain just south of the Park line.

A scout told me he supposed there were but two fine old bulls in the Park herd of Moose; but Mr. Holt



Antilocapra americana (Ord).

(Shelt.)

Antelope; Pronghorn.

July 24, 1902. - A young female of the year died in the pen at M. H. S., and was preserved. "Hair slipped off of forehead."

July 23, 1902. - F juv. Ditto "White markings apparent on throat."

Dec. 13, 1902. - On the right side of the Gardiner River, towards its mouth, a small band of Antelope was seen, most of their range being occupied by 50 horses and cows that settlers had turned out to graze on the winter range of the Antelope.

Dec. 16, 1902. - Herd feeding between the Gardiner and Yellowstone rivers, just above Gardiner City.

April 19, 1902. - Hundreds range along the north border of the Park, in the vicinity of Gardiner City, Montana. Later many were seen on the head of Black-tail Deer Creek and east of Mount Everts. When closely approached, the old males would stamp and bleat. Four young fawns that died in the animal corral at the Mammoth Hot Springs, during July, 1902, were prepared for the U. S. Nat. Mus. collection.

The first Antelope returned to their winter feeding ground, near Gardiner, on Oct. 25, 1902, when about



Specimens of Ouletopra americana (Ord).

5251. juv. 1902. Caught by the scouts on Black-tail  
Deer Creek. Died in the animal corral. Skin and skull.

5252.	juv.	1902.	Ditto	do
5253.	♀ juv.	July 23, 1902	{ White markings apparent on throat } Ditto.	do
5354	♀ juv.	" 24, "	Ditto.	do



Antilocapra americana (Ord). (Sheet II.)  
Antelope; Pronghorn.

25 were seen.

Holt says the Coyote is the greatest enemy to the Antelope. In winter, when the earth is deeply covered with snow, ~~When~~ <sup>and</sup> Antelope were traveling ~~up~~ on a bare ridge <sup>and trying to avoid the heavy drifts,</sup> Mr. Holt has seen Coyotes take a position in front of the Antelope ~~for~~ with the object of making them plunge into deep snow to one side, where, while floundering they <sup>were easily</sup> ~~are~~ caught ~~in~~ and killed by the Coyotes. Old Antelope turn and retrace their steps if they see a Coyote <sup>waiting</sup> in front of them. Many adult Antelope are killed by Coyotes; but only the young of the Deer are, as a rule, attacked.

On November 17, 1902, Mr. Holt and I saw a female Antelope flying with her utmost speed up a steep mountainside. Suspecting that a Mountain Lion had attempted to spring upon her <sup>as she was</sup> ~~in~~ crossing a ravine, we rode to the spot and found that a Coyote had given her a frighted her. Lying ~~in a~~ <sup>for the purpose of watching us</sup> ~~thicket of sagebrush~~ <sup>was</sup> the cunning old fellow ~~stood~~ <sup>until</sup> peering at us in fancied security, ~~but~~ a bullet from



Antilocapra americana (Ord). (Sheet III.)

Antelope; Pronghorn.

Holt's rifle laid him low. These Coyotes are quite large. ~~This one, as~~ This one was skinned, without measuring, and, when held up, <sup>length of the</sup> ~~the~~ <sup>fresh skin almost</sup> ~~was~~ <sup>equal to</sup> my own height.

Nov. 17, 1902. - Mr. Holt and I saw 75 Antelope at the north base of Mt. Everts. Mr. Holt supposes the total number of Antelope wintering on the north side of the Park to possibly exceed 1000.

Antelope are mostly confined to the north side of the Park, where a herd of near 1000 still ranges. A formerly large herd that ranged ~~was~~ in the Madison Basin and Henry Lake region, on the west side, was reduced to 75 in 1898, and at ~~the present~~ in 1902 did not exceed 25. The herd at the north border of the Park ranges on the Yellowstone and lower part of the Gardiner River, <sup>in the vicinity of Gardiner City, Montana,</sup> during winter, its breeding range extending from Black-tail Deer Creek to Soda Butte. This herd is increasing, although many are destroyed by Coyotes. The young, <sup>about as frequently one as two,</sup> ~~one or two in number,~~ are born during the first half of June.



Ovis canadensis

(Sheet I)

Mountain Sheep.

October 5, 1902. — Found skull of ♀ near the top of Burnsen Peak. One of the Government scouts, named Holt, told me that he sometimes saw Sheep about the Golden Gate, at the base of this mountain.

Dec. 7, 1902. — Mr. Peter Holt thinks there are 50 to 75 Sheep wintering on the north side of the Park.

Sept. 11, 1902. — Seven Sheep, 3 yoes and 4 lambs, were seen close to the road, between 1st + 2d bridge, on the right bank of Gardiner River, at an altitude of 5650 feet. They paid no attention to passing vehicles. They were first seen at 2 P. M. At 5 P. M. they had moved up the hill to a rocky hilltop where they looked picturesque. A Magpie came along and alighted on a dry cedar above them and delivered a short lecture before passing on.

Oct. 3, 1902. — One Sheep was seen across the Yellowstone River ~~above the~~ between Eagle and Crevasse Creeks.

Sheep were frequently seen on the lower Gardiner River ~~during~~ in April and May, 1902. A few came down to the river during the summer, but I saw none until September 11, 1902, when three females and four young were seen grazing beside the Gardiner River.

During the summer of 1902, a flock of Sheep on Mount Washburn. My son saw about 30 Sheep about half-way up Mount Washburn the Sunday preceding my visit which was September 24.



Specimens of Ovis canadensis

5422. ♂ ad. Part of weathered skull from Eagle Creek, Park Co.,  
Montana. Found Nov. 28, 1902.
5439. ♂ ad. One horn, found at Cinnabar, Park Co., Montana,  
December 16, 1902.
5440. ♂ ad. One horn Ditto.
5287. ♂ ad. Part of skull found in August, 1902, on the Gardiner  
River, Y. N. P., Wyo.
5288. (♀?). Skull found in 1902, on Swan Lake Flat, Y. N. P., Wyo.
- 5289 ♀ Skull found, October 5, 1902, on Bunsen Peak,  
Y. N. P., Wyoming.



Ovis canadensis

(Sheet II.)

Horns and skeletons are commonly seen about the Park. Oct. 24, 1902. - No Big Horns have been

seen on the Gardiner River since September 11th.

Many <sup>decayed</sup> skulls of Sheep were seen, in 1902, across the Yellowstone River from Gardiner and thence to Eagle Creek; also in the foothills of Electric Peak, back from Caminabar.

Herd of 39 counted in Gardiner Canyon at 2-mile post (from <sup>Gardiner</sup> ~~Caminabar~~), altitude 5515 feet, about the end of October, 1902. The day was cold and stormy, the Sheep extremely gentle, and not in the least disturbed by my presence.

<sup>The same,</sup>  
Holt and I counted ~~the~~ herd on the high mesa above this point, November 17, 1902, and found it to number just 40. The rams were rutting, and the flock so gentle that we found it difficult to scatter them enough to enable us to count them with accuracy.



Nov. 6, 1902. — On the Gardiner River at the 3-mile Post (altitude 5515 feet), saw 39 Mountain Sheep.

"Buffalo" Jones counted 49. Holt and I counted 40. They leave Mount Everts about June 1. They <sup>which are born in June,</sup> have <sup>their</sup> young on Mount Washburn and Specimen Ridge. Old rams often separate themselves from the flocks. Mr. Holt thinks their banding together is for protection. During the winter of 1896-'97, a fresh Sheep was found killed by Mountain Lions on four successive days.

Scouts have found no Sheep that had been killed by Mountain Lions or poachers since 1897; and the Mount Everts flock is slowly increasing. Holt estimates the weight of the largest rams at from 250 to 300 pounds; old females at from 175 to 180 pounds. One or two young are born at a birth, most often two.



Bison bison (Linnaeus). (Sheet I.)

October 14, 1902 to Mr. Lamont relative to the  
purchase of a herd of Bison for the Park.



Specimens of Bison bison (Linnaeus).

5419. }  
5420 } Skulls found on the Gardiner River, Yellowstone  
5421 } National Park, Montana, Nov. 28, 1902.

5435. ♂ ad. Found December 14, 1902, at the cabin of Mr. J. W. Hulse, at 8000 feet altitude, on Crevasse Mountain, Park Co., Montana. Presented by Mr. Hulse.

5282. Skull found at Mammoth Hot Springs, Y. N. P., Wyo. in the year 1902.

5283. Skull Ditto

5284 " "

5285 Horn core "

5286 Horn "



Bison bison (Linnaeus).

(Sheet II.)

October 5, 1902. - Came suddenly upon three Bison in the new corral on Glen Creek. The first seen out of a "Zoo".

But few remain in the Park. Many old skulls were observed in various localities.

A corral was for a new herd of Bison, introduced from the Good Night Ranch. The fence was completed around this enclosure in September, 1902. Three bulls from Texas were added to the domestic herd, October <sup>23,</sup> ~~24~~, 1902, making 17 in all.

Sept. 17, 1902. - Several Bison were removed ~~in a boat~~ from an island in Yellowstone Lake, <sup>in a boat,</sup> and landed at the Lake Hotel dock by Colonel Waters, their owner.

Hospital Steward Koepke saw three Bison on Black-tail Deer Creek.

The Bison in the Park prior to September, 1902, were native to the region, and consequently were of the darker-colored mountain form.

Major John Pitcher, U.S.A., Superintendent of the Yellowstone National Park, telegraphed on



Phenacomys

Three were trapped <sup>during November, 1902,</sup> under logs of which the roadbed through Snow Pass is constructed. All were taken in a spot where Peromyscus texanus subarcticus and Sorex were its neighbors, the altitude being about 6800 feet. The winter coat was prime in November.



# Measurements of *Chondestes*?

Collector's number.	Sex and age.	Date	Locality.	Length.	Tail vertebrae	Tail hairs	Hind foot	Head.	Ear crown	Ear notch.
5375	♂ ad.	Nov. 9, 1902	Swampy area, Mammoth Hot Springs, Wyoming.	165	55	61	22	31	9	13.5
5395	♂ ad.	Nov. 11, 1902	do	168	63	70	22	31	10.5	13
5406	♀ ad.	Nov. 14, 1902	do	176	60	69	21	32	10.	13.



? Phenacomys

Oct. 5, 1902 . — One of these grayish mice was seen  
on the north slope of Bunsen Peak, Oct. 5, 1902.



# Specimens of Microtus musculus

5321.	♀ ad.	Oct. 28, 1902.	Mammoth Hot Springs, Wyo.	160; 77; 80; 18.3; 24; 9.5; 13.
5342.	♂ ad.	" 29, "	do (End of tail gone.)	— ; — ; — ; — ; — ; — ; —
5372.	♀ ad.	Nov. 3, "	do (In formalin.)	— ; — ; — ; — ; — ; — ; —
5405.	♂ ad.	Nov. 13, "	do	185; 87; 90; 20.6; 26; 12; 15.5
5408.	♂ ad.	" 16, "	do	155; 72; 75; 17; 23; 10; 13.
5409.	♂ juv.	" " "	do	— ; — ; — ; — ; — ; — ; —
5428.	♂ ad.	" 28, "	do	165; 78; 81; 20; 25; 10; 14.



(Sheet I.)

# Specimens of Peromyscus texanus subarcticus J. A. Allen.

5326	♀ ad.	Oct. 28, 1902	Mammoth Hot Springs, Wyoming.	156	70	78	21	28	12	16.5
5327	♂ ad.	do	do	163	67	74	21	29	12	16.5
5328	♂ ad.	do	do	154	67	74	20.6	30	12	16
5329	♂ ad.	do	do	161	62	70	20.8	29	12	16.5
5330	♂ ad.	do	do	161	67	74	21	29	12	16.5
5331	♂ im.	do	do	154	65	—	20			
5332	♀ im.	do	do	148	64	—	19.5			
5339	♀ im.	Oct. 29, 1902	do	148	64	—	20.5			
5340	♂ im.	do	do	150	64	—	20.5			
5341	♀ im.	do	do	145	60	—	20.2			
5347	♀ im.	Oct. 30, 1902	do	154	65	—	20			
5354	♂ ad.	Oct. 31, 1902	do	159	66	73	22	30	12	16.5
5355	♂ ad.	do	do	155	65	72	21.5	30	12	16
5356	♂ im.	do	do	154	61	—	20			
5361	♂ im.	Nov. 1, 1902	do	154	65	—	20			
5364	♂ ad.	Nov. 2, 1902	do	162	64	70	20	30.5	13	17
5365	♀ ad.	do	do	162	65	72	21	29	13	16.5
5373	♀ im.	Nov. 3, 1902	do	160	63	—	21			
5374	♂ juv.	do	do	153	65	—	21			
5377	♂ ad.	Nov. 9, 1902	Snow Pass,	165	67	75	21	30	14	18
5378	♂ ad.	do	" "	163	69	78	22	29	14	16.5
5379	♀ ad.	do	" "	155	68	75	20.5	28	13.5	17
5380	♀ ad.	do	" "	161	68	75	21	29	13	16.5
5381	♀ im.	do	" "	150	64	—	20			
5382	♀ im.	do	" "	155	67	—	21.5			
5383	♀ im.	do	" "	151	63	—	21			
5387	♂ ad.	Nov. 10, 1902	" "	165	66	73	20.7	29	12	16
5388	♀ ad.	do	" "	172	72	80	20	29	13	17



(Sheet I.)

Peromyscus texanus subarcticus J. A. Allen.

One found dead at a "Stygian" cave at M. H. S., Oct. 11, 1902.  
Another " " " " " " " " 15, "  
" " " " " " " " 17 "  
" " " " Cinnabar, Montana "



Peromyscus texanus subarcticus J. A. Allen. (Sheet II.)

One of the most abundant mammals in the vicinity of the Mammoth Hot Springs. It probably ranges throughout the Park; but its ascertained limits were from Cinnabar, Montana (5255 feet) up to Snow Pass, Wyoming (7000 feet). It was ascertained from the scouts and soldiers that Mice of this genus are troublesome in all of the cabin stations of the Park. It is possible that more than one species of Peromyscus inhabits the region.

(over)



(Sheet II.)  
Specimens of Peromyscus hexanus subarcticus J. A. Allen.

Collector's number	Sex and age	Date.	Locality.	Length.	Tail vertebrae	Tail hairs	Hind foot	Head	Ear above crown.	Ear above notch.
5389	♂ ad.	Nov. 10, 1902	Snow Pass, Mammoth Hot Springs, Wyoming.	165	71	77	20	29	13	17
5390	♀ im.	do	do							
5391	♀ im.	do	do							
5392	♂ ad.	do	do							
5393	♀ im.	do	do	171	71	78	21.5	29	13	17
5396	♂ ad.	Nov. 11, 1902.	do							
5397	♀ im.	do	do	168	70	78	22	30	13	17.5
5398	♀ im.	do	do							



Neotoma (Leontoma) cinerea? (Shut I.)

Mountain Rat. Trade Rat.

April 24, 1902. - One was seen that had its nest among some broken rock at the mouth of the Boiling River.

Some were killed at Mammoth Hot Springs, by Judge Meldrum and others.

At Gardiner City and Crevasse Mountain, in Park Co., Montana, they are also common.

Dec. 1, 1902. - "I send you [from Gardiner City, Montana,] a Mountain Rat, Park Rat, Trade Rat."

(Signed) "E. Hofer." Specimen No. I ad., Dec. 14, 1902.

This animal was kept in confinement about a <sup>fortnight</sup> ~~week~~.

It would eat almost anything, but preferred raw onions.

It had the peculiar habit of stamping with its hind feet, and of nervously working its legs and wiggling its whiskers. Length, 380 mm.; tail vertebrae, 170; tail to end of hairs, 205; hind foot, 44; head, 57; ear

from crown, 26; ear, from notch, 32.

I saw a, of one,

~~It~~ <sup>Its skin was seen</sup> at J. W. Hulser's cabin, on Crevasse Mountain, <sup>Park Co., Montana at the</sup> altitude of 8000 feet, where they are not uncommon. Another was received from Mr. E. Hofer, taken at Gardiner City (altitude 5300 feet).

"Rats" were numerous and troublesome at the Canyon Hotel in 1902. In store at Gardiner City, Montana Oct. 13, 1902. In the houses of Holt and Morrison (several) east of Judge Meldrum.



Specimen of Neotoma (Leontoma)

No. 5434, ♂ ad., December 14, 1902, Gardiner City, Park  
Co., Montana. Sent me by Mr. E. Hofer. Length, 380 mm.;  
tail vertebrae, 170; tail to end of hairs, 205; hind foot, 44;  
head, 57; ear from crown, 26; ear from notch, 32.



## Microtus

Compare the skulls of Nos. 5322 and 5325. <sup>With both</sup> ~~the~~ <sup>the</sup> flesh  
(no. 5325).  
I made the following comparison: Of the latter "Belly yellowish.  
Tail shorter and more sharply bicolored. Ear smaller. Muzzle  
heavier." They are probably the same species, but should  
be carefully compared.

These animals were often seen running about during  
the day. They were sometimes taken in traps between my  
morning and evening visits.

Dr. Merriam reported Arvicola riparia from  
the lower Geysers Basin, in 1872.

My son saw a small Arvicola rodent, <sup>perhaps this species,</sup>  
at the base of Mount Washburn, in September, 1902.



# Specimens of Microtus

Collector's number.	Sex and age.	Date	Locality.	Length.	Tail vertebrae	Tail hairs	Hind foot	Head	Ear, crown.	Ear, notch.
53222	♀ ad.	Oct. 28, 1902	Marsh at Maunawatha, West Hawaii, W. I.	165	41	44	20	32	10	13.3
53223	♀ imm.	do	do	141	36	—	19.5			
53224	♀ imm.	do	do	121	32	—	18			
53225	♀ ad.	do	do	138	34	37	19.5		9	12.
53337	♀ ad.	Oct. 29, 1902	do							
53338	♀ imm.	do	do	142	36	—	20			
53344	♀ imm.	do	do	138	35	—	19.5			
53353	♀ imm.	Oct. 31, 1902	do	128	30	—	19.3			
53357	♀ imm.	do	do	135	31	—	20			
53358	♀ ad.	Nov. 1, 1902.	do	169	43	50	20	32	8	14
53359	♂ imm.	do	do	144	40	—	20			
53360	♂ imm.	do	do	145	37	—	20			
53366	♂ ad.	Nov. 2, 1902	do	152	42	47	20.8	32	11	14
53367	♀ imm.	do	do	135	33	—	20			
53368	♀ imm.	do	do	138	34	—	20.5			
53371	♂ imm.	Nov. 3, 1902	do	102	25	—	16			

(Tail gone.)



Fiber

Muskrat.

Mr. Holt saw them in Nez Percey Creek; on Fire  
Hole River; Yellowstone River; Pelican Creek; Snake River;  
Gibbon River (= head of Madison River); Madison River.

At Norris they are often seen floating down the Gibbon  
River. Mr. Holt does not remember seeing any  
Muskrat houses in the Park, but thinks them all "Bank"  
Rats. The color, Holt says, is light.



## Eutamias

Six were <sup>obtained</sup> ~~taken~~ at Snow Pass, above the Mammoth Hot Springs, at the altitude of nearly 7000 feet. All were taken during November, when the ground was covered with snow, in traps set beneath logs and roots of trees, in a forest of lodge-pole pine, Douglas spruce, Abies, and Picea.



# Specimens of Crotomys

Collector's number.	Sex and age.	Date	Locality	Length.	Tail vertebrae	Tail hairs	Hind foot	Head	Ear crown	Ear notch
5376	♀	Nov. 9, 1902	Shower Pass, Mammoth Hot Springs, Wyoming.	130	38	45	18	27	8	14
5385	♀	Nov. 10, 1902.	do	125	35	42	18	26	8	13
5399	♀	Nov. 12, 1902.	do	125	35	41	18	26.5	10	14
5400	♂ ad.	do	do	133	40	48	18.5	27.	10	14
5401	♂ ad.	do	do	134	41	48	18	26.5	10	14
5402	♀	do	do	130	36	45	18	27	10.2	14.3



(Sheet I.)  
*Sciurus hudsonicus baileyi* J. A. Allen.

Very numerous from M. H. S. to the Lower Geyser Basin, July 27, 1889. [The only Tree Squirrel in the Park].

July 28, 1889. — At the Upper Geyser Basin. It climbs nimbly and swiftly from limb to limb, suspecting each cone of the lodge-pole pine, apparently, smelling of it, until it discovers one in which the seeds are ripe, when it quickly cuts it off. I saw one chase a *Callospermophilus* up a spruce tree to the very top. The latter beat a speedy retreat to the ground as soon as it got a chance.

July 29 and 30, 1889. — These Squirrels were fed at the Canyon Hotel, and became very bold. When hiding food received from the cooks, the Squirrels were much annoyed by pilfering birds, called "camp robbers" (*Perisoreus canadensis capitalis*).

Oct 6, 1902. — Several were seen near the summit of Benson Peak, where they had fed extensively upon the seeds of the Douglas spruce and *Pinus albicaulis*.

Sept. 17, 1902. — Numerous at Lone Star Geyser.  
" 18, " " " " Yellowstone Lake.



Specimens of Sciurus (Tamiasciurus) hudsonicus baileyi J. A. Allen.

Collector's number.	Sex and age.	Date.	Locality.	Length.	Tail, vertebrae.	Tail, hairs.	Hind foot.	Head.	Ear, crown.	Ear, notch.
162	Imm. ♂	July 15, 1902.	Overlook Mt., near Gardiner, Park Co., Montana. (8000 feet)	347	142	196	54	58	15	26
5346	Ad. ♂	Oct. 30, 1902.	Mammoth Hot Springs, Wyoming.	330	130	175	52	54	15	25
5386	♂	Nov. 10, 1902.	do	323	130	185	50	56	13	23
5394	♀	Nov. 11, 1902.	do							



(Sheet II.)

Sciurus (Tamiasciurus) hudsonicus baileyi J. A. Allen.

Oct. 11, 1902. - Abundant at M. H. S. Very busy gathering stores of food for winter.

Oct. 12, 1902. - Now unusually active in harvesting spruce and pine cones for winter provender.

Oct. 17, 1902. - Abundant at M. H. S. & Snow Pass.

Oct. 20, 1902. - About Stygian Cave they were numerous, busy, tame.

Very abundant in coniferous woods throughout the Park. In September, 1902, it was feeding on the seeds of Pseudotsuga at Ft. Yellowstone. Some were so tame as to come to the hospital kitchen, where they were fed quite regularly. Heaps of cones of Pseudotsuga and Pinus flexilis several feet deep were found around the trunks of trees about Mammoth Hot Springs, and elsewhere in the Park. It builds nests much like those of the eastern Red Squirrel, oftenest in the Douglas Spruce.

October 24, 1902. - Very busily gleaming, and exceedingly tame.

In November they were feeding on the Douglas Spruce and were rarely tempted by the oat meal or apple with which my traps were baited. Mr. Peter Holt informed me that very many of the beautiful Squirrels are eaten by Lynxes and Mt. Lions.



Exceedingly abundant everywhere from M. H. S. to the Lower Geyser Basin, July 27, 1889.

From the Lower to the Upper Geyser Basin, July 28, 1889, it was everywhere abundant. The young were then about half grown.

Oct. 5, 1902. — Hundreds were seen on Beersen Peak, some ranging as high as 9000 feet. Louis killed 2 with a beam shooter. One was found almost at the summit of the mountain which rises to 9 feet. On a lumber pile at an recently-abandoned camp, where many horses had been feed, dozens of these beauties were scampering about, busily carrying off the scattered grain to their homes among the rocks of the mountain slope above.

April 19, 1902. — Seen from Gardiner River at 5600 feet altitude up to Mammoth Hot Springs. It feeds on the fruit of the wild rose and red grumpers.

September 17, 1902. — Numerous at the Lone Star Geyser.

September 18, 1902. — Numerous at Yellowstone Lake.

Oct. 11, 1902. — Abundant and busy, at M. H. S., getting ready their winter stores.

Oct. 12, 1902. — Now unusually active in harvesting pine and spruce cones for winter provisions.

Oct. 17, 1902. — Abundant at M. H. S. & Snow Pass.

Oct. 20, 1902. — About Stygian Cave, numerous, busy, tame.

Oct. 13, 1902. — Many out at M. H. S.

" 24 " — Abundant

When the snow came all disappeared for a time; but several came out on November 16, 1902.



# Specimens of Cestariidae

		Length	Tail vert.	Tail hairs	hind foot	Head.	Ear crown	Ear notch.
5305.	♀ ad. Bureau Park, Y. N. P., Oct. 5, 1902.	205	93	115	33	37	11	17 mm.
5306.	♂ juv. do	188	82	—	31	—	—	—
5345.	♀ ad. Mammoth Hot Springs, Wyo. Oct. 29, 1902.	230	105	135	34	—	12	16.
5363.	do do Nov. 1, 1902.	216	95	118	33	38	11.3	17.



Oncomis

(Sheet II.)

Common throughout the drainage basin of the Gardiner River and its tributaries, and probably throughout the Park. It is commonly seen about horse manure on all the roads of the Park. It remained active through September and most of October, disappearing ~~for some time~~ after the snow falls of October; but ~~a few~~ several came out to feed on November 16.



Spermophilus (Callospermophilus)

Several were seen between M. H. S. and the Lower Geyser Basin, July 27, 1889.

July 28, 1889. — Common at the Lower Geyser Basin and thence to the Upper Geyser Basin.

<sup>Sept.</sup>  
~~Sept.~~ 15-20, 1902. — Made the tour of the Park. None were seen; and none were noted later at M. H. S.

Abundant throughout the higher portions of the Park, down to within about a mile of the M. H. S. on the Golden Gate road, ranging from about 6700 feet upward.

~~It is quite numerous~~ In making the Tour of the Park it is usually seen soon after leaving the <sup>first</sup> ~~first~~ <sup>port</sup> mile (6635 feet), and has become quite numerous by the time the second mile-port is reached at 6927 feet altitude. Hence it is seen everywhere in wooded country; but it avoids the open country. At the Golden Gate they <sup>are</sup> ~~may~~ always be seen feeding in the road, only scurrying aside far enough to let the coaches pass when the horses are close upon them. The true Chipmunks, of the genus Eutamias, are frequently seen feeding with them in the roads.



Spermophilus (? armatus Kennicott.) (Sheet I.)

"Gray Gophers" were "abundant between Mammoth Hot Springs and the Golden Gate" [on the old "lower" road].

April 24, 1902. - Abundant at M. H. S. Its note is a bird-like twitter.

June 10, 1902. - An adult female was taken from an immature Red-tail, near the 4-mile post on Swan Lake Flat.

Observed from April 22 to September, 1902. It hibernates early. Not seen much later than the beginning of September. Exceedingly abundant from the mouth of the Gardiner River to Swan Lake Flat (5300 to 7300 feet altitude), and east of Mount Evans.

A specimen was taken from a Red-tailed Hawk near the 4-mile post on Swan Lake Flat (altitude

7253 feet), on June 11, 1902. Skinned and preserved a specimen.  
Oct. 14, 1902. - I <sup>when found</sup> found one, sometimes dead, and partly eaten, <sup>in front</sup> of the guardhouse at Fort Yellowstone, ~~park~~, October 14, 1902.







Arctomys flaviventer Audubon and Bachman.  
Ground-hog.

Abundant between M. H. S. and the Lower Geyser Basin,  
July 27, 1889.

April 19, 1902. — The first of the season was noted  
on the Gardiner River, in Y. N. P., ~~Wyo~~ Montana;  
Apr. 19th and the next Apr. 22nd., at 5500 ft altitude.

September 19, 1902. — One was seen beside Yellowstone  
Lake. None had been seen abroad at M. H. S. for  
some time previously.

Aug. 10, 1902. — One seen at Elk Park.

Extremely abundant throughout the Park, from  
near Gardiner City, where I saw one as early as  
April 19, 1902, to the Yellowstone Lake. As a rule they  
hibernate early in September, although I saw one <sup>out,</sup> at  
Yellowstone Lake, as late as September 18, 1902.



Specimens taken: —

No. 163, collection of Louis di Zerega Mearns. Male,  
July 20, 1902. Crevasse Mountains, Park Co., Montana.  
Length  $13\frac{1}{2}$  inches; tail vertebral,  $4\frac{3}{4}$ ; hind foot,  $1\frac{7}{8}$ .



? Thomomys clusius Coues.

A species of Thomomys was found at Mammoth Hot Springs and Tower Falls, and its mounds were seen almost everywhere in the Park. At Tower Fall,

, 1902, one came out of its burrow, several times, while the sun was brightly shining. Rain fell heavily on the following day. I have several times seen Pocket Gophers <sup>of this and other genera (Geomys and Ceratogeomys)</sup> out of their burrows — a rather unusual occurrence — just before a heavy fall of rain.

Mounds of this creature were observed almost up to the summit of Burser Peak (9 feet altitude) on October 5, 1902. Freshly-raised mounds were noted at the Mammoth Hot Springs as late as October 24, 1902.

Mr. Peter Holt has found food in the cheek-pouches of this animal.



(Sheet I.)

Lepus (Sylvilagus) baileyi Merriam.

Big Horn Cottontail.

A Cottontail was noted near the Fountain Geyser, July 28, 1889. It is uncertain whether this is the same as the Cottontail obtained along the ~~lower~~<sup>northern</sup> border of the Park, at a much lower altitude, and in open country.

April 24, 1902. - Cottontails were found on the Gardiner River at the altitude of 6000 feet.

Dec. 13, 1902. - One <sup>in a thicket,</sup> beside the Gardiner River, at 5600<sup>feet.</sup>

Dec. 16, 1902. - On the Gardiner River.

Oct. 23, 1902. - Shot 5 across the Yellowstone from Gardiner.

Oct. 3, 1902. - Shot two and saw many Cottontails across the Yellowstone River from Gardiner City.

This Cottontail is abundant from ~~5100~~ the Yellowstone Valley, at Hot Springs, Montana, up to the upper border of the Mammoth Hot Springs mineral "formation" (5100 to 6700 feet). A Cottontail was also noted July 28, 1889, near the Fountain Geyser (altitude about        feet). It is uncertain whether this Cottontail is the same as that found below the belt of Murray pine; and it is possible that I mistook a young Snow-shoe Rabbit for a Cottontail, as no others were seen by either Mr. Holt or myself higher than 6900 feet.



# Specimens of *Lepus baileyi* Merriam.

	Upper	Length	Weight	Head & Neck	Head	Ear	Ear notch
5307. ♂ ad. MacArthur Co., Mont., Oct. 3, 1902.	do	370	60	90	95	80	71; 61 mm.
5308. ♂ juv. - - - - -	do	370	60	86	92	75	71; 60 "
5309. ♀ ad. - - - - -	do	407	67	90	100	80	68; 60 "
5310. ♀ ad. - - - - -	do	385	64	90	95	78	73; 63 "
5311. ♀ ad. - - - - -	do	375	60	87	93	75	73; 63 "
5312. ♂ ad. - - - - -	do	386	57	82	97	77	73; 63 "
5313. ♀ ad. - - - - -	do	405	54	83	103	82	66; 58 "
5314. ♀ ad. - - - - -	do	380	55	83	96	81	70; 61 "
5315. ♂ ad. - - - - -	do	370	60	95	101	80	68; 60 "
5316. ♀ ad. - - - - -	do	385	55	82	95	75	70; 60 "
5317. ♂ ad. - - - - -	do	377	58	88	95	78	72; 61 "
5318. ♀ ad. - - - - -	do	400	60	87	98	77	73; 61 "
5429. ♂ ad. Eagle Creek, do - - - - -	do	375	50	80	90	77	68; 59 "



*Lepus baileyi* Merriam.

(Sheet II.)

A Western Red-tail killed one in Meldrum Gulch, September 26, 1902.

Extremely numerous on the rocky banks of the Yellowstone River, where they appear in numbers among the sagebrush, towards evening, being seldom seen in daytime.

Several shot October 13, 1902, were in prime coat except between the fore limbs, between hind limbs, and on under side of ~~head~~ neck.

Five shot on Eagle Creek, Oct. 23, 1902. They were more nearly prime than those shot Oct 13, but still some molting between fore limbs, between hind limbs, and on under side of neck.



Lepus campestris Bachman.

April 19, 1902. — One in gray <sup>summer</sup> coat seen at  
Horr, Park Co., Montana (altitude 5150 feet).

April 24, 1902. — Several seen at the altitude  
of 6000 feet on the Gardiner River, Yellowstone  
National Park, Wyoming, that were still <sup>in</sup> nearly  
complete winter coat of white.

Dec. 13, 1902. — Sitting doubled up under cedars at  
6000 feet altitude. All white winter pelage.

Dec. 16, 1902. — On the Gardiner River.

Dec. 17, 1902. — One at M. H. S. Not yet changing to white.  
(altitude 5150 feet)

April 19, 1902. — One, seen at Horr, Park County, Montana,  
was in summer coat. Others, at Fort Yellowstone (altitude 6200  
feet), still retained some of the white winter pelage. (altitude 6000 feet)

On the prairie flats below the M. H. S. the change  
to the white winter pelage took place in October.

By the middle of November <sup>nearly</sup> all were white.

Nov. 1, 1902. — Lepus campestris is not yet white.

One moderately scared cleared eleven feet at  
a bound, in light snow, November 16, 1902. Where  
they had been running about at night, near my  
quarters at Fort Yellowstone, their leaps were about  
seven feet, which is probably near their average  
when not frightened; but I think I have seen tracks  
<sup>almost</sup> as much as twenty feet apart where a coyote had  
chased one down a slope.



# Specimens of Lepus campestris Bachman.

Specimens of <i>Lepus campestris</i> Bachman.								
		Hind foot.	Tail vert.	Tail, hairs	Head	Ear crown	Ear notch	End outstretched hind limbs.
5319. ♀	Oct. 25, 1902. Coimbatore, Montanara.	585	135	190	96	140	112	780; 900.
5410. ♂ ad.	Nov. 23, 1902. Head of <sup>4.75. Paw 160</sup> <del>Sten Leves</del> <sup>Wg 236</sup> 660	130	205	108	136	112	855	980.
More to eye, 62; diameter of eye, 19. All white but ears, more, and a patch over each eye. Iris yellowish brown. Lower half shading to horn color at tip. Weight $7\frac{1}{8}$ lbs. Cervical spine.								



19. Lepus americanus barrettii.

The Hare that is abundant at Mammoth Hot Springs is supposed to be this form.

Very tame; feeds in hospital yard. Some were still almost all white late in April, 1902, at M. H. S.

All gray September 19, 1902.

Changing to white on inner face of ears and near tail, Oct. 12, 1902. Ground bare, except one day.

One all white Nov. 16, 1902.



20. *Lepus campestris* Bachman.  
A Hare, supposed to be this one,  
was seen at Horr, Montana,  
April 19, 1902.

Several all white at Mt. H. S. Nov. 16.  
One moderately scared cleared 11 feet  
at a bound in light snow, Nov. 16, 1902.  
Where they had been running at night about  
our house their leaps were 7 feet which is  
probably the ordinary length when not  
frightened.



Lepus americanus bairdii (Hayden).

Snow-shoe Rabbit.

Abundant above 6000 feet. It does not loose all of the white winter coat before the end of April. Some were changing to white on October 12, 1902; and on November 1, 11 and 15 have acquired all of the - but 16, some were seen that appeared to ~~be~~ <sup>±</sup> entirely white ~~white~~ winter pelage.

The following <sup>remarkable passage</sup> is from the facile pen of Doctor C. Hart Merriam\*:

"One very curious fact relating to Lepus bairdii is that all the males have teats and take part in suckling the young. I say all the males, because four out of five specimens procured were adult males, and all had large teats full of milk, and the hair around the nipple was wet and stuck to it, showing that they were then nursing their young." <sup>This is followed by,</sup> ~~Then follows a~~ surgeon's certificate "verifying the above statements."

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\* Sixth Annual Report of the U. S. Geological Survey of the Territories, by F. V. Hayden, 1873, pp. 667 and 668.



Ochotona

Mr. Holt saw "Pikas" along the Gardiner River, and around the Bison corral, in Nov. & Dec., 1902. They were not bleating at this season.

I saw them among the rocks at Silver and Golden Gate, and on the lower Golden Gate road <sup>(6500 to 7000 feet)</sup> during the period from June to September, 1902.

Mr. Peter Holt saw them at the Post Garden, on the Gardiner River, as low as 5600 feet, November 17, 1902.



Erethizon epixanthum Brandt.

Yellow-haired Porcupine.

Porcupines were numerous in the Park at the time of our visit, in July, 1889. One was found dead at the Canyon Hotel on our arrival, July 28th. The hotel people complained of being somewhat annoyed by the familiarity of these beasts.

September 19, 1902. - One was seen on a rocky hillside at Yellowstone Lake (altitude      feet).

In July, 1889, several were seen near the hotel at the Grand Canyon. In 1902 Porcupines were reported to be scarce. Some remain about the base of several rocky peaks east of Mt. Everts, on Turkey Pen trail.

Merriam obtained this species at Henry Lake.



Specimens.

No. 5415. Quills removed from the flesh of a Mountain Lion. Envelope containing quills taken from the flesh of a Puma (No. 5411), killed November 25, 1902, at the Gardiner River, Yellowstone National Park, Montana.



(Sheet I.)

Castor canadensis frondator Mearns

Sonoran Beaver; Broad-tailed Beaver.

A pair of old ones with two young were observed by a party of tourists, including myself, on Fire Hole River, Lower Geyser Basin, July 27, 1889, at evening. Both old and young were swimming freely about, the young sometimes climbing upon the mother's back. A third young one was dead beside the stream, having been accidentally killed by a child who threw a stone.

Dec. 7, 1902, Mr. Peter Holt said: "On all streams bordered by willows. They are increasing rapidly. They number thousands. At Virginia Meadows the dam broke, and road workmen supplied the Beavers with brush for its repair, which they would use overnight. This was in November, 1902. At Soda Butte I saw a Beaver turn a drifting tree-trunk at right angles to its course, and lodge it in an opening across the stream and then pile brush around. They are tame there, and easy to observe on moonlight nights.

Beaver skins sell for \$4<sup>00</sup> per pound, and average 2 lbs. to the skin." "Wyoming and Montana State laws prohibit the trapping of Beavers in those states."

All are "Bank Beavers" on the Gardiner River. There are Beaver houses on Beaver Lake, at Yancey, Soda Butte, the small lake between Bunsen Peak and the Gardiner River, at the heads of Cascade and Antelope creeks.

On visiting the house at the head of Cascade Creek, the Beavers immediately leave and commence splashing in the lake.

The Park Beavers subsist of the bark of the willow, quaking aspen, and narrow-leaved cottonwood. Mr. Holt thinks that all of the <sup>trees</sup> ~~pinus~~ cut by them are intended for the construction of dams and not for food.



Specimens of Castor canadensis frondator Mearns.  
Broad-tailed Beaver.

No. 5433. Two lower jaws from Swan Lake Flat, Y. N. P.,  
Wyoming, found June 11, 1902. The animal was eaten  
by a Puma (Felis oregonensis hippolestes).



(Sheet II)

Castor canadensis frondator Mearns

Beavers have become numerous on ~~practically~~ most of the streams of the Park. Dozens of them were seen at Soda Butte, in September, 1902. On September 24, 1902, I saw a Beaver house and dam on Antelope Creek, at the base of Mount Washburn that must have been about 8300 feet above sea level.

Dams and houses are on Beaver Lake; also many on Fire Hole River. Near the mouth of the Gardiner River many narrow-leaved cottonwoods were cut during the summer of 1902, <sup>as low as</sup> ~~at~~ 5300 feet altitude.

During July, ~~1888~~ 1889, ~~at Fire~~ near the old Fountain Hotel, a small boy threw a stone with no thought of harming the creature, but killed a Baby Beaver ~~that~~ as it swam past in the Fire Hole River.

I noted that it was "feeding extensively" on the Murray pine, on the Fire Hole River, in 1902, as I saw many large trees felled by Beavers; but Mr. Holt thinks these trees are never eaten but are felled ~~simply~~ solely for use in building dams.

I saw several dams across the Gibbon River above Virginia Cascades, September 24, 1902; and there were many dams across Willow Creek. Mr. Holt tells me that Beavers are numerous on Black-Tail Deer Creek.



Vulpes macrotis Baird.

I found one that had been poisoned by the scouts at the Mammoth Hot Springs, and sent its skull to the U. S. National Museum.

Miss Jackson showed me an excellent photograph of one, taken near one of the cabins.

This ~~is~~ Fox is abundant in the Park, where I sometimes saw them, and also found tracks of them on Eagle Creek, Park Co., Montana, October 13, 1902.

Holt says: "Abundant. They burrow in a manner similar to the Coyote. They come about stations and pick up scraps of food at night, and even in daytime. Not as shy as Coyotes about visiting camps and cabins. Food: Rabbits, grouse, mice, which latter it catches in the sloughs. Holt frequently meets with this species in his journeying. Both the Fox and Coyote harry grouse nests when the chicks are young.



Specimens of Vulpes macrourus Baird.

5297. - ad. Skull of an individual poisoned at the  
Mammoth Hot Springs, Yellowstone National Park,  
Wyoming, during the winter of 1901-'02.
5298. - ad. Pair of mandibles *Sitto*.



Canis griseus (Sabine).

Rare in the Park. Captain Chittenden considers  
them very rare. Peter Holt, the scout, has never seen  
one in the Park. I saw what I firmly believe  
to have been a Timber Wolf, on \_\_\_\_\_, 1902, at  
a small pond near the six-mile post, beyond  
Devon Lake Flat.



Canis lester Merriam.

(Sheet I.)

A female (No. 5404) weighed 21 lbs., average weight.  
Abundant throughout the Park, following the  
big game ~~to~~ the higher portions in summer  
and descending with them in autumn. In  
September they return to the Mammoth Hot Springs,  
where their voices are regularly heard at night  
until the poisoned baits set out by the Scouts  
begin to lessen their numbers and make the  
survivors less bold.

On <sup>Norris</sup> ~~Norris~~, 1902, when driving near the Norris  
Basin, I saw a Coyote come out of a dense forest  
fir, spruce, and  
of lodge-pole pine into the road, with its nose close to  
a rabbit trail that it was following through devious  
windings at length came into the woods on  
the opposite side.

<sup>(Lad.)</sup>  
One shot by Peter Holt, Nov. 17, 1902, was five  
feet in length of the fresh skin. In November  
many places were seen where Coyotes had been  
digging for mice, usually in sagebrush country. They  
also dig out rabbits from their burrows.



Lania Leete Merriman.

21 —

1300—

355 350

435 460

185195

204 2/5-

100 112

102 120

14.5 —

— 430 —

100 96

91100

180

180

No. 5300. Weathered  
skull, without mandibles.  
Adult. Hound. Nov. 2, 1902.

No. 5404. Ad. Mammoth  
Hot Springs, Wyoming, Nov.  
13, 1902. Skin with skull.

No. 5412. Bad. Gardiner  
River, Montana, Nov. 25,  
1902. Skin with skull.

No. 5427 *Ed. Gardner*  
River, Y. N. P., Montana.

Nov. 17, 1902, Skin with skull.

No. 5432. 1 Lower jaw found at M.H.S., Wyo., April 29, 1902.

No. 5294. Skull found at M. H. P., Wyo., Spring of 1902.

do—

Lo

*do*

La



When travelling through a sagebrush country, <sup>the</sup> ~~not~~ coyotes, if taken unawares, may be seen slinking behind the nearest sage bush where it lies with its head amongst the branches, <sup>and</sup> ~~where~~, ~~if~~ (it were not for its <sup>pointed</sup> ears, ~~the~~ the creature would be invisible even at a short distance. I have seen <sup>coyotes</sup> ~~them~~ following Antelope with loud baying, like ~~a~~ dogs, and supposed that they were driving them with some cunning purpose in mind, perhaps trying to drive them into some trap or ambush, which the scouts say they are quite clever enough to plan.



# Lynx

I saw no Lynx in the Park; but Holt and I followed a track in the snow at Snow Pass. The track is not so round as that of a Felis, being more pointed anteriorly, and without the circular alignment of the pads. The one we followed often stood up upon logs, or <sup>stood up</sup> against ~~the~~ trunks of trees on hillsides.

Holt has never known any Lynx to attack a Deer. He says they feed upon Red Squirrels, Rabbits, grouse, Mice, etc.

Holt says <sup>Lynxes</sup> ~~they~~ are very numerous in the Park. They are most abundant where Rabbits are the thickest. Between the Fountain Geyser and Gibbon River is a favorite resort. Food: Rabbits, grouse, Squirrels, and smaller animals. Holt does not know of an instance of their having killed a Deer, although they are sometimes said to do so.

In February Holt saw one just north of Obsidian Cliff. It was couching in the snow when shot at.



Felis oregonensis hipolestes (Merriam). (Sheet I)

Rocky Mountain Lion.

During the winter of 1900-'01, tracks of a Mountain Lion were seen by a <sup>member of the</sup> Hospital Corps at Mammoth Hot Springs, who returned for a companion, after which the trail was followed by the two men, ~~and~~ who soon came upon the body of a Mule Deer that had just been slain by the Lion. The ~~Lion~~ <sup>latter</sup> disappeared, and the Deer was secured for the table.

Scouts are <sup>sometimes</sup> detailed to kill Lions that follow the Park Deer ~~and~~ <sup>or</sup> Sheep, in winter. A scout named Morrison killed a mother and four half-grown Lions in one spot, near the Gardiner River. In the same locality, Peter Holt and I trailed <sup>and shot</sup> a female Lion, 1902. This individual (No. ) was sent to the U. S. National Museum. It had killed a fully grown male Coyote, and, <sup>after eating about one-quarter,</sup> carried the remainder to the point where we came up with it.

October 13, 1902. - Found an old den in a cave on Eagle Creek, where two small Elk and a number



Measurements of *Felis ongonensis* *hippobates* (Merriam).

Collector's number.	Sex and age.	Date	Locality	Length.	Tail vertebrae	Tail hairs	Hind foot	Head.	Ear crown	Ear notch	Tip of nose to angle of mouth.	Tip of nose to eye	Tip of nose to ear	Tip of nose to end of outstretched hinder extremity.	Distance between tips of extended fore and hind limbs <sup>Weight</sup> lbs. <sup>Avair.</sup>	Height of animal at shoulder	Height of animal at hip	Girth of neck	Girth of chest	Girth of loin	Distance between eyes	Girth of head in front of ears	Distance between ears	Distance from shoulder to hip.
5411	♀ ad.	Nov. 25, 1902	Landwehr Pass, Montana	1825	725	790	270	220	80	98	80	70	166	1690	793	630	720	310	640	550	50	405	100	680
5416	-	Aug. 1, 1902	W. H. S., Wyo.	Skull broken.																				

\* Tail vertebrae measured after skinning, 760 mm.  
Weight, 79  $\frac{3}{4}$  lbs. Avair.



Felis oregonensis hippolestes (Merriam). (Sheet II.)

of heads of beef cattle, from a neighboring slaughter pen, had been carried and devoured.

Holt and I followed <sup>their</sup> trails at M.H.S., Nov. 15 and 18, 1902. On Nov. 17, 1902, several were tracked east of Mt. Everts, on the Turkey Pen trail, and on the Gardiner River.

Holt has taken a fresh trail and followed it rapidly for thirty miles without coming up with the Lion.

Lions kill many Mountain Sheep, destroying those that stray from the flock and approach too near the canyons in which the Lions are concealed.

Holt thinks 3000 to 4000 would be a fair estimate of the number of Mountain Lions in the Park provided the number of tracks be made the basis of comparison with the game animals; but, as a matter of fact, the distances traveled by <sup>the</sup> ~~these~~ in search of its prey Puma are enormous; and a small number of them will ~~make~~ leave a prodigious number of tracks in a few days. Holt states that the number of Lion tracks seen when making his snow-shoe trips



*Felis oregonensis leppolestes* (Merriam).

in the Park,

is enormous. Holt thinks that Rabbits and Grouse are the principal food of the Puma; but many Red Squirrels are <sup>caught and</sup> eaten by them. Holt does <sup>personally</sup> not know of an instance where old Elk bulls have been killed by them, although he has seen where they have feasted on dead ones. They slay many Deer and Mountain Sheep; but Holt does not recall an instance where Antelope have been killed by them. Holt has never seen the nest or young of this Puma. Holt once saw a very large male, <sup>lying on a rocky hill in the Cow pasture,</sup> ~~sunning~~ a mile from the foot of Fort ~~Hancock~~ Yellowstone, sunning itself soon after sunrise. Holt charged his horse towards the Lion; but this only had the effect of making the beast swing its tail in anger; and so it was left in possession of the field where found.

During the winter of 1897-'98, <sup>when the snow lay deep on the ~~Gardiner~~ River,</sup> a scout named Morrison shot five Lions — a mother and four cubs — under a pine tree. A photograph of the group, when dead, was given me.



Felis oregonensis hippolestes (Merriam). (Sheet IV.)

A youngish female, in good flesh, killed November 25, 1902, weighed  $79\frac{3}{4}$  poundsavoirdupois. Its fur was matted with burs of the wild liquorice (Glycyrrhiza lepidota Pursh). Quills of the Porcupine were found in the head, neck, and all of the limbs. Some were deeply imbedded in the leg, one quill having penetrated the tibia and set up an osteitis. The feet contained many quills. Some were taken out and preserved in an envelope (No. 5415). This Puma had <sup>fat male</sup> carried a Coyote a long distance, after eating a portion of it. By following the bloody trail in the snow Holt and I came up with the Lion which we killed, and secured both ~~the~~ it and the Coyote for specimens.



Ursus americanus Pallas.

One came to the Fire Hole River, near the old hotel at the Lower Geyser Basin, about sundown, July 27, 1889, and hauled an old hide of some large animal from the place where he had cashed it, and, dragging it ashore proceeded to make a meal of it. A party of tourists ~~watched~~ were spectators from the opposite bank of the stream.

I saw one at Snow Pass, near the M. H. S., September, 1902.

A cub was treed on Sulphur Creek, at the base of Mt. Washburn, September 24, 1902. I hit it with a stone.

Several were noted by me at the Upper and Lower Geyser basins, and at the Lake Hotel, in 18902.

At the Cavalry camp at the Lower Basin, I saw one tear open an old decayed log containing a nest of ants on which it fed, lapping up both eggs and ~~ants~~ <sup>insects</sup> at the water-tank.

One seen behind the M. H. S. Hotel, Oct. 11, 1902.

Tracks were sometimes seen in Fort Yellowstone.

Holt says that Bear-Tracks are often seen in deep snow at the beginning of winter.



Specimens of Ursus americanus Pallas.

5413. — — 1902. Yellowstone National Park. Skull given  
me by Mr. Wagner, one of the scouts.
5414. — — 1902. Ditto.



# Ursus horribilis Ord.

(I)

## Rocky Mountain Grizzly.

Quite numerous in the Park. The following specimen was known as a frequenter of the garbage heaps at the Canyon Hotel for several years past, and was said to be 12 years old, when ordered shot. He was thought to be a good sized Grizzly.

He was shot by a scout named Mc Bride, on September 26, 1902, having repeatedly broken into the Canyon Hotel storeroom and scattered the contents. I visited the hotel, in company with Capt. Hiram M. Chittenden, U.S.A., on September 24, 1902. I was then told that this Bear had battered in the heavy door of the storeroom, which was on the first floor, during the preceding night, and that they had not attempted to drive the bear away, because he had become increasingly ugly ever since the hotel was closed to tourists for the season. At first he would run away, but in a few days became bolder and so ugly that it was thought best to let him alone.

The heavy door was splintered and completely demolished.

I saw the skin, with head and feet attached, in Major Pitcher's yard; and took the following measurements:

Weight (actually taken on scales),	726 lbs.	Avirdupois.	
" of hide and head	140	"orbital," inches	
Tip of nose to angle of mouth,	5 $\frac{1}{4}$ inches	Diameter of <del>eye</del> opening	1 $\frac{1}{8}$
" eye	6 $\frac{1}{2}$	" Distance between eyes	4 $\frac{1}{4}$
" ear	14 $\frac{7}{8}$	" Girth of head in front of ears,	36 $\frac{1}{2}$
" occiput	18	" Breadth of bare muzzle pad,	3
" end of tail	90	" Height " " "	2 $\frac{7}{8}$
Width of fresh skin at middle	63	" Hind foot, 10 $\frac{1}{2}$ by 6.	
Stretched of fore limbs	100	" Fore " 10 $\frac{1}{2}$ " 6. (same).	
" hind	86	" Curve of longest fore claw, 100 mm.	
Distance between ears	18	" Chord " " "	80 "
Height of ear above crown	3 $\frac{3}{4}$	" Curve of " hind "	45 "
notch	5 $\frac{1}{4}$	" " " " "	40 "
Width of ear,	4 $\frac{3}{4}$		



Ursus horribilis Ord.

(Sheet II.)

Rocky Mountain Grizzly

September 26, 1903. — An immature Grizzly about 3 years old, became so bold and ugly at the camp of engineer workmen engaged in road building that it became necessary either to move the camp from Sulphur Creek at the base of Mount Washburn, or else kill the Bear. Major Pitcher ordered the bear killed. I examined the skin and ~~skull~~ head, in Major Pitcher's yard at Fort Yellowstone, and took the following measurements:

Male, 3 years old. Weight of skin and head,  $49\frac{1}{2}$  lbs.

Distance from nose to angle of mouth —  $4\frac{7}{8}$  inches

" " eye — — — — —  $6\frac{1}{4}$  "

" " ear — — — — — 13 "

" " occiput — — — — — 15 "

" between eyes — — — — —  $3\frac{3}{8}$  "

Length of orbital opening — — — — —  $\frac{7}{8}$  "

Upper side of head and neck, decidedly yellow. This would be called a "Brown Bear." Muzzle and head much more slender than in the old male. This Bear became savage; came into camp and chased everyone out.

Seventeen were feeding at once at the garbage heap of the Canyon Hotel, on the night of September 18, 1902.

"Mr. Dooley" a Park Grizzly was shipped to Washington in the spring of 1902; and a much larger, old male, sent in the autumn.



Taxidea taxus (Schreber).

American Badger.

July 28, 1889. —

A very large one was seen crossing the mineral "formation" of the Upper Geyser Basin. Of course it could not burrow in the rock; and it was so flurried by the presence of several vehicles and mounted soldiers that it seemed at one time to be of a mind to dive into one of many boiling geysers by which it was surrounded. It ran quite swiftly, but frequently changed its direction.

Aug. 10, 1902. — One seen at Elk Park.



Mephitis hudsonica (Richardson).

Lute numerous all over the Park — Canyon, Hayden Valley, and along the southern boundary.

Skunks were extremely abundant in the Park during the summer of 1889, much less so in 1902. Tracks were observed in the snow, on the Turkey Pen Trail; and the species was noted at Yellowstone Lake, September 17, 1902. It is also found at the Mammoth Hot Springs.



Specimens of Mephitis hudsonica (Richardson).

825. - ad. Found at Mammoth Hot Springs, Yellowstone National Park, Wyoming, July 26, 1889. Skull only. Am. Mus. N. H. No. ?.

5431. Part of skull found at Mammoth Hot Springs, Wyoming, in 1902.



Gulo luscus (Linnaeus).

Wolverine.

July 28, 1889. — One was seen between the Lower and Upper geyser basins. It was crossing at an open space. Its nose was down, but it travelled at a good gait and soon disappeared from view in a woods.

Dec. 7, 1902. — Mr. E. Hofer once saw six together in Hayden Valley. Mr. Peter Holt says: "Along the south boundary are some. Several have been seen on Snake River."

Three were seen near Norris, ~~July 27,~~ September 25, 1902.



Mustela caurina Merriam.

Mr. Holt saw a Pine Marten track in Snow Pass,  
December 10, 1902. Trappers at Jackson Hole get about  
\$2.50 per skin.

At the National Museum, <sup>I compared,</sup> a few specimens of the Marten  
from Colorado and other localities in the Rocky Mountains,  
and found them to be nearest to Mustela caurina  
Merriam, from Chehalis County, Washington.

The skin of a Marten, taken at Crevasse Mountain,  
Park Co., Montana, <sup>the skull of which was not taken,</sup> by Mr. J. W. Hulse, is before me.

The ~~skull~~ skin measures 770 mm. in length, including  
the skin of the tail, the hairs of which extend 100 mm.  
beyond. The animal was a male, in prime winter coat,  
the hoariness of the head indicating ~~age~~ advanced age. The  
coat is extremely soft and thick, the drab <sup>gray</sup> underfur of the  
back being about 10 mm. in length, and the long overhairs varying  
<sup>in length</sup> from 25 to 35 mm. Hairs of tail having an exposure of 110 mm.

Color. — General color brown, not far from sepia,  
but tinged with raw sienna especially upon the sides  
and underparts, and deepening to blackish on the tail,  
feet, muzzle and hindhead. Head between muzzle and  
ears, and all ~~below~~ of under side, drab. Chest with a  
bright patch of tawny-ochraceous, and a narrow streak  
~~of the same~~ in middle of abdomen. Back with a  
slightly darker vertebral area.

Some are seen each winter in the vicinity  
of M. H. S., where I saw a track November 16, 1902.  
It can climb almost vertical icy cliffs.



Putorius

A small white Weasel was found dead, in April, 1902, near the Mammoth Hot Springs. Its tracks were numerous at the Mammoth Hot Springs, in November, 1902, when it was observed to frequent hollows about long grass in which Mice (Peromyscus texanus subarcticus Allen) abound.



# Specimens of Putorius

5301. A small white Weasel. Part of skin and skull, of an individual found on Glen Creek, Yellowstone National Park, Wyoming, in the spring of 1902. Had probably been killed by some raptorial bird.



Putorius arizonensis Mearns.  
Mountain Weasel.

April 19, 1902. - One seen on the Gardiner River  
Y. N. P., Montana at the altitude of 5500 feet.

September 26., 1902. - One was found dead beside the  
upper reservoir in Meldrum Gulch, it having been  
caught and killed by some bird of prey.

Others were seen on the Golden Gate road at the  
altitude of 6900 feet.

One seen at 2-mile post, September 19, 1902.

There were many tracks on the Turkey Pen Trail,  
November 17, 1902. Tracks were seen almost  
everywhere <sup>in the snow</sup> during November, 1902.



Putorius (Lutreola) vison \_\_\_\_\_

One was seen on the bank of the Gibbon River,  
between the Norris and Lower geyser basins, July,

27, 1889. Mink are said to abound in the Park.  
I saw none of them in 1902.



? Lutra canadensis pacifica (Rhoads).

Pacific Otter.

In Fall River, Echler, the Yellowstone and some of its tributaries such as "Otter" Creek, this animal has been found. It builds long slides on high snowbanks. On Beecher Creek, one rose up in the water to look at Mr. Holt; then it swam to the edge of the shore ice and again raised up its head and looked intently at him. When in the water it uttered a snorting or blowing sound.



# Sorex

Sometimes this small Shrew is seen running swiftly among the leaves of aspen thickets in the vicinity of the Mammoth Hot Springs. Some were also trapped at the marsh ~~below~~ caused by the overflow from Jupiter Terrace, below the Mammoth Hot Springs (altitude 6000 feet); and a few were trapped at Snow Pass giving the species a known vertical range of extending from 6000 to 7000 feet. The species is probably common throughout the Park.

On October 28, 1902, I set mouse traps of the "Cyclone" <sup>pattern</sup> variety, on the edge of a marsh <sup>fed by the overflow from the Mammoth Hot Springs. The place was</sup> densely grown with tules, cat-tail, sedges, ~~rushes~~, arrow-grass, tule and other rushes; and one of these Shrews lost no time in <sup>making its presence known by</sup> getting into one of the traps. Eight others were subsequently taken there, one or two in traps set in shallow water, where the Water Shrews (*Neosorex*) were entrapped, but usually on drier ground about the edges of the marsh. Three were subsequently trapped at Snow Pass, extending the known range of the species from 6000 feet up to 7000 feet.

They are both nocturnal and diurnal. Several were caught in the traps during bright days.

The autumnal molt occurs in October.

"I caught this Shrew while digging for wood under five feet of snow, at Astringent Creek cabin, twelve miles east of Yellowstone Lake. Peter Holte."

The above was extracted from a letter dated "Feb. 12, 1903."



# Specimens of Sorex

Collector's No.	Sex and age.	Date.	Locality.	Length.	Tail vertebrae	Tail hairs.	Hind foot.	Head.	Remarks.
5320	♂ ad.	Oct. 28	Maumouth Hot Springs, Wyoming.	108	47	52	13	22	Edge of ear had grown.
5335	♀ ad.	Oct. 29	do	107	43	48	12.8	22	do
5336	♀ ad.	do	do	110	45	51	13	22.5	do
5343	♂ ad.	do	do	108	46	51	13	22	do
5348	♂ ad.	Oct. 30	do	113	46	50	13	22	Moulting. do
5349	♂ ad.	do	do	—	—	—	12.5	22	End of tail gone. Head and body 63. do
5350	♂ ad.	do	do	113	46	50	12.7	22	do
5351	♂ ad.	Oct. 31	do	112	46	50	13	23	Moulting. do
5362	♀ ad.	Nov. 1	do	111	50	54	13.8	22	do
5384	♀ ad.	Nov. 10	Snow Base, do	112	47	53	13	23	Mouth large at roadside.
5403	♀ ad.	Nov. 12	" do	110	45	51	13	22.5	do
5407	♂ ad.	Nov. 14	" do	108	44	49	13	21.5	do



# Specimens of Neosorex

			Length.	Tail vertebrae.	Tail hairs.	Anal feet.	Head.
5333.	♂ ad.	Oct. 29, 1902.	Mammoth Hot Springs, Wyo.	154;	75;	80;	20.5; 25.
5334.	♀ ad.	do	do	154;	76;	81;	21; 25.
5352.	♂ ad.	Oct. 31, 1902.	do	151;	73;	77;	20; 26.
5369.	♂ ad.	Nov. 3, 1902.	do	155;	72;	77;	20; 26.
5370.	♀ ad.	do	do	155;	72;	77;	20; 25.5.

Apparently quite numerous in the marsh below Jupiter Terrace, ~~at below~~ <sup>at</sup> the Mammoth Hot Springs, Wyoming, where five were trapped during the latter part of October and the first days of November. Two were taken November 3, 1902, when snow fell and the traps were taken in. All were taken in shallow water among the cat-tails and rushes beside slowly-running streams of warm water from the boiling springs.



# Bats.

Oct. 5, 1902. — Several Bats were seen on a trip to the summit of Benson Peak, returning in the evening.

Bats were commonly observed. Species not determined. Said to occur in abundance in the cave known as the Devil's Kitchen.

Dr. Merriam reported Nycticejus crepuscularis and Vespertilio lucifugus from the Lower Geyser Basin, in 1872; also Vespertilio yumanensis from the Hot Springs, Montana.

I think Myotis evotis occurs in the Park.



